

What is claimed is:

1. An image display apparatus comprising:

a display device of a reflective type for displaying an image and reflecting illumination light fed thereto from ahead so as to produce image light representing the image;

an eyepiece optical system, disposed in front of the display device and composed of a rear portion nearer to the display device and a front portion farther from the display device, for directing the image light from the display device through the rear and front portions to a predetermined observation point so as to permit a virtual image of the image displayed by the display device to be observed at the observation point;

a light source, disposed in a position substantially conjugate with the observation point, for emitting the illumination light fed to the display device; and

a combiner, disposed between the rear and front portions of the eyepiece optical system, for introducing the illumination light from the light source into the rear portion of the eyepiece optical system in such a way that a path of the illumination light overlaps with a path of the image light,

wherein

the rear portion of the eyepiece optical system includes a refractive optical element having a positive power,

the front portion of the eyepiece optical system includes a concave reflective surface, and

the eyepiece optical system has an exit pupil behind and at a finite distance from the display device.

2. An image display apparatus as claimed in claim 1,

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$$0.3 \leq E_{pd} / fb \leq 0.9$$

1. The first part of the document is a list of names and addresses, which appears to be a directory or a list of contacts. The names are written in a cursive script, and the addresses are listed below them. The list includes names such as "Mr. J. H. Smith", "Mr. W. H. Jones", and "Mr. R. H. Brown".

3. An image display apparatus as claimed in claim 1,
wherein the concave reflective surface included in the front portion of the eyepiece optical system is a semitransparent reflective surface that partially reflects and partially transmits light, and is so disposed as to point to the observation point, and
the front portion of the eyepiece optical system includes a selective reflective surface that is so disposed as to face the concave reflective surface and that reflects or transmits light selectively according to a polarization direction of the light.

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system is formed on a flat surface of a member that has a flat surface and that transmits light.

5. An image display apparatus as claimed in claim 4,
wherein a convex surface of the meniscus lens included in the front portion of the eyepiece optical system is formed as an aspherical surface.
6. An image display apparatus as claimed in claim 5,
wherein the meniscus lens included in the front portion of the eyepiece optical system is composed of a concave surface side portion made of glass and a convex surface side portion made of resin.
7. An image display apparatus as claimed in claim 1,
wherein the refractive optical element having a positive power included in the rear portion of the eyepiece optical system is a planoconvex lens.
8. An image display apparatus as claimed in claim 1,
wherein the refractive optical element having a positive power included in the rear portion of the eyepiece optical system has an aspherical convex surface.
9. An image display apparatus as claimed in claim 1,
wherein the display device is a reflective liquid crystal panel, and
the combiner is a reflective polarizing plate.
10. An image display apparatus as claimed in claim 1,

an angle between an optical axis of the eyepiece optical system and a normal to the combiner is in a range from 30° to 40°.

the combiner is disposed between the prism included in the rear portion of the eyepiece optical system and the prism included in the front portion thereof.

12. An image display apparatus as claimed in claim 11,
wherein the prism included in the rear portion of the eyepiece optical system has a convex surface so as to be shared as the refractive optical element having a positive power.